

**METHOD OF FORMING A LOW K DIELECTRIC IN A
SEMICONDUCTOR MANUFACTURING PROCESS**

Abstract of the Disclosure

5 A low K dielectric composite layer is formed of a low k barrier layer and
a low K dielectric layer on the barrier layer. The barrier layer, which is
deposited with the result of having a hydrophobic top surface, is treated with an
oxygen plasma to convert the surface from hydrophobic to hydrophilic. A
subsequent water-based clean is very effective in removing yield-reducing
10 defects on the barrier layer due to the conversion of the surface of the barrier
layer. After the water-based clean, the low K dielectric layer is formed on the
surface of the barrier layer to achieve the composite layer that has a low K.

15